Notice of Allowability	Application No.	Applicant(s)	
	09/964,635	HASHIZUME, YUSUKE	
	Examiner	Art Unit	
	Cheukfan Lee	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *an application for patent filed September 28, 2001*.

2. ☒ The allowed claim(s) is/are *1-10*.

3. ☒ The drawings filed on *18 December 2001* are accepted by the Examiner.

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____ .
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date 9/28/01
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____ .

Cheukfan Lee

1. All pending claims 1-10 are allowed.

2. The following is an examiner's statement of reasons for allowance:

Claims 1 and 4 are allowable over the prior art of record because the prior art, including Jinbo et al. (U.S. Patent No. 6,009,292), does not disclose a motor drive control means obliquely increases a set electric current value during acceleration drive every velocity that the optical scanning means reaches by a pulse number according to an accepted original image reading magnification and changes the set electric current value when shifting to uniform velocity drive in accordance with the reading magnification to provide a characteristic for lowering the set electric current value, in combination with other limitations of claims 1 or 4.

Jinbo et al. discloses control means for controlling driving a stepping motor for an image reader in accordance with various magnifications set by the user. During acceleration of the motor, the drive current in form of a rectangular wave is applied since minimal vibration is not required in this acceleration region. After the acceleration period, the motor speed is shifted to a uniform velocity, and the motor is controlled with microstep driving for minimal vibration. However, Jinbo et al. does not teach the driving control during the acceleration with an increasing electric current as claimed in each of claims 1 and 4.

Another close prior art Holdaway (6,750,627) discloses an open-loop step motor control system which drives the motor to accelerate in a non-linear (exponential) manner to a maximum speed, and having microstep drive modes having a constant period. However, Holdaway's teaching is not applied to motor drive in an image reading device and discloses nothing about image reading magnification required by claims 1 and 4.

Claims 2 and 3 depend upon claim 1.

Claims 5 and 10 are allowable over the prior art of record including Jinbo et al. (6,009,292). Claims 5 and 10 requires that the motor drive control means optimizes a set electric current value during acceleration drive every velocity that the optical scanning means reaches and a set electric current value when shifting to uniform velocity drive by a pulse number according to an accepted original image reading magnification so as not to generate vibrations in the motor. This feature in combination with other limitations of claim 5 or claim 10 is not taught by the closest prior art Jinbo et al. or Holdaway discussed above.

Claims 6-9 depend upon claim 5.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Jinbo et al. discloses control means for controlling driving a stepping motor for an image reader in accordance with various magnifications set by the user. During acceleration of the motor, the drive current in form of a rectangular wave is applied since minimal vibration is not required in this acceleration region. After the acceleration period, the motor speed is shifted to a uniform velocity, and the motor is controlled with microstep driving for minimal vibration. However, Jinbo et al. does not teach the driving control during the acceleration with an increasing electric current.

Holdaway (6,750,627) discloses an open-loop step motor control system which drives the motor to accelerate in a non-linear (exponential) manner to a maximum speed, and having microstep drive modes having a constant period. However, Holdaway's teaching is not applied to motor drive in an image reading device and discloses nothing about image reading magnification.

Hashizume (U.S. 6,816,288) discloses an image reading apparatus and method wherein a scanner CPU controls the driving of a scan motor via a scan motor driver based on a microstep division number of a step angle corresponding to information on reading magnification received from an operation panel.

Kitamura et al. (U.S. Patent No. 6,747,765) discloses an image reading apparatus (Figs. 16, 14 and 17).

Kawanabe (U.S. Patent No. 6,459,229) discloses a motor control apparatus (Fig. 5).

Ogura et al. (U.S. Patent No. 5,124,744) discloses an original scanning apparatus and image forming apparatus (Figs. 7 and 8 and col. 7).

Kaufhold et al. (U.S. Patent No. 6,628,098) discloses a method for accelerating a control movement in a positioner system with step motors.

Sakurai et al. (U.S. Patent No. 6,147,776) discloses an apparatus for controlling a scanning speed of an image scanner.

Kitamura (U.S. Patent No. 6,316,902) discloses a step motor drive control circuit employed in an image scanner.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cheukfan Lee whose telephone number is (571) 272-7407. The examiner can normally be reached on 9:30 a.m. to 6:00 p.m., Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward L. Coles can be reached on (571) 272-7402. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Cheukfan Lee
March 31, 2005

Cheukfan Lee